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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,591	11/22/2005	Tomoyuki Sato	077191-0022 (3577P008)	7142
<div>7590 07/20/2009 MCDERMOTT WILL &amp; EMERY LLP 227 West Monroe Street Chicago, IL 60606-5096</div>				
EXAMINER				
SHOME, ARUNDIPTA				
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3771				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/528,591

**Applicant(s)**

SATO ET AL.

**Examiner**

ARUNDIPTA SHOME

**Art Unit**

3771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 06 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4-18, 20 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-12, 18, 20 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)
- Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1, 4-18, 20, and 22 are pending. Claims 2, 3, 19, and 21 have been cancelled. Claim 22 is newly added. This Action is in response to the amendment filed on 4-06-2009.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 4-17, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 1, it is unclear what is meant by “an open end *fast* with the support structure...” The recitation of “fast” on line 13 lacks clarity as to how the open end is connected to the support structure.

Regarding Claim 11, there is a lack of antecedent basis for “the inflation mechanism” on line 3.

Regarding Claim 22, there is a lack of antecedent basis for “the helmet” on line 28. The recitation of “open end that is fast with the support structure...” on line 12 is also unclear for the same reason as noted with respect to claim 1 above.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4-7, and 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US Patent 3,835,852) in view of Windefordner (US Patent 5,860,168).

Regarding Claim 1, Anderson discloses a support structure 11 that is engageable with a diver's head; a lens that is mounted on the support structure (col. 1, line 18), the lens and the support structure defining a breathing space from which the diver can be supplied with air (col. 1, line 33); a sealing arrangement positioned on the support structure to sealingly engage the diver's face so that the breathing space is substantially airtight (col. 1, line 17);

Anderson also discloses a gas supply arrangement that is in fluid communication with the breathing space to supply the breathing space with gas (air hose 13).

Anderson does not disclose an equalization assembly that is mounted on the support structure.

Windefordner discloses an equalization assembly on a lens support structure (Figs. 1 and 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Anderson to include an equalization assembly as taught by Windefordner so that a user can easily clear the nasal passages, as is commonly done in diving.

Windefordner teaches the equalization assembly including an access means in the form of a nose-engaging member (the flexible membrane covering recess 32) that is displaceable with respect to the support structure between an inoperative position in which the nose-engaging member is free of a diver's nose and an operative position in which the nose-engaging member can be used to block the diver's nostrils to permit the diver to close his or her nostrils so that the diver can carry out an equalization procedure (Fig. 4, the membrane can be squeezed in), the equalization assembly further including a pocket-shaped, flexible membrane that has an open end that is fast with the support structure at an equalization opening and a closed end that defines

the nose-engaging member, the membrane being dimensioned to accommodate the ingress of at least a diver's thumb and forefinger into the breathing space (Fig. 4 shows the pocket membrane fast with the support structure defining and opening to accommodate a thumb and forefinger).

Regarding Claim 4, the equalization assembly includes a base structure 24 that is engageable with an edge portion of the support structure (Fig. 3) and defines the equalization opening. An extendible portion (the flexible membrane) defines a volume in which two digits can be received so that the extendible portion can be urged toward the diver's nose into the operative position and retracted from the diver's nose in the inoperative position (Fig. 4).

Regarding Claim 5, the nose engaging member includes a pair of sockets (Fig. 4) each socket is shaped to receive a digit, with the sockets spaced so that the nose can be received between the sockets (Fig. 4).

Regarding Claim 6, a nosepiece 20 is mounted on the sockets of Winefordner and is configured so that as the nose engaging member is urged into contact with the diver's nose, the nosepiece serves to close the diver's nostrils (col. 2, lines 63-65).

Regarding Claim 7, Anderson discloses a regulator in fluid communication with the breathing space (col. 1, line 14).

Regarding Claim 18, Anderson teaches a diving apparatus with a support structure 11, a lens mounted on the support structure, (Fig. 1), and the lens and support structure define a breathing space. Anderson lacks the support structure defining an equalization opening. Winefordner teaches an equalization opening as claimed, as noted above with respect to claim 1.

Regarding Claim 20, an extendible portion 32 is interposed between the base structure 24 and the nose engaging member 20 to extend and retract as the nose engaging member is displaced into and out of operative position (Fig. 4 of Winefordner)

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US Patent 3,835,852) in view of Windefordner (US Patent 5,860,168) as applied to claim 7 above, and further in view of Troup (US Patent 6,070,577), and further in view of Garrahan (US Patent 3,351,089).

Regarding Claim 8, Anderson does not disclose a connecting valve assembly with a primary air source. Troup teaches a connecting valve assembly 110 with an inlet and an outlet and a primary air source 100 connected to the inlet. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Anderson to include a connecting valve and air supply as taught by Troup because Anderson's device needs an air supply to supply air to the air hose and mask.

Anderson also lacks a backup self contained air supply with an outlet valve assembly. Troup teaches a backup self contained air supply 200 with an outlet valve assembly (regulator 220). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Anderson to include a backup air supply with an outlet valve as taught by Troup because a backup air supply in the case of a diving emergency.

Anderson does not disclose a safety valve assembly that has a primary inlet that is connected to the outlet of the connecting valve assembly. Garrahan teaches a safety valve assembly (Fig. 1) that has a primary inlet (12) that is connected to the outlet of the connecting valve assembly, a second inlet 13 and a primary outlet 20. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to modify the device of Anderson to include a safety valve as taught by Garrahan in order to control input from either the main or backup canisters of Troup. The primary outlet would be connected to Anderson's regulator.

Anderson does not disclose a control means arranged on the safety valve assembly to permit the safety valve assembly to direct air flow from the back up air supply instead of the primary air source when necessary. However, Garrahan's control valve permits selection of air from separate air sources via knobs 22, 23, and 24. The addition of Garrahan to Troup's air supply system would thus permit this.

6. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US Patent 3,835,852) in view of Windefordner (US Patent 5,860,168) and further in view of Troup (US Patent 6,070,577), and further in view of Garrahan (US Patent 3,351,089) as applied to claim 8 above, and further in view of Eungard (US Patent 5,607,258) and further in view of Kaburaki (US Patent 5,906,200).

Regarding Claim 9, Anderson does not disclose a shoulder harness. Eungard teaches a shoulder harness for diving (col. 2, lines 1-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made modify the device of Anderson to include a shoulder harness as taught by Eungard to the support structure of Anderson to provide buoyancy control for the diver. Eungard's harness also includes a flexible collar 98 that is between the shoulder harness and the back up air supply (Eungard teaches that an air supply can be mounted on the back of the harness, see col. 2, line 28). The back up air supply (Troup element 200) is a breathing tank mounted on the shoulder harness.

Anderson does not disclose that the diving apparatus is a helmet. Kaburaki teaches a diving apparatus that is a helmet with nasal equalization abilities. It would have been obvious to one of ordinary skill in the art at the time the invention was made modify the device of Anderson to be in the form of a helmet as taught by Kaburaki because both structures would work equally well for providing air to underwater divers.

Regarding Claim 10, Eungard's flexible collar 98 includes an inflatable bladder (col. 4, lines 37-40). An inflating mechanism (valve 96) is mounted on the inflatable bladder to permit a diver to inflate the bladder and adjust the fit of the collar member.

7. Claims 11 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US Patent 3,835,852) in view of Windefordner (US Patent 5,860,168) and further in view of Troup (US Patent 6,070,577), and further in view of Garrahan (US Patent 3,351,089) as applied to claim 8 above, and further in view of Eungard (US Patent 5,607,258).

Regarding Claim 11, Troup discloses a second outlet 234 for connecting to an inflating mechanism. It would have been obvious to one of ordinary skill in the art at the time the invention was made modify the device of Anderson/Troup to include the secondary outlet connected to Eungard's inflating mechanism with conduit 234 to fill Eungard's bladder in order to provide buoyancy control.

Regarding Claim 22, Anderson discloses a support structure 11 that is engageable with a diver's head, a lens that is mounted on the support structure (Fig. 1) and defining a breathing space, and a sealing arrangement on the support structure to seal the diver's face (col. 1, line 17). Anderson also discloses a gas supply arrangement 13 to supply the breathing space with gas.



Anderson lacks an equalization assembly on the support structure. Winefordner teaches an equalization assembly as claimed, as noted with respect to claim 1 above.

Anderson does not disclose a connecting valve assembly, a safety valve assembly, a backup air supply, or a control means on the safety valve assembly. The rejection of claim 8 above with Troup and Garrahan addresses these limitations.

Anderson also lacks a shoulder harness connected to the support structure with a flexible collar member. The rejection of claim 9 above with Eungard addresses these limitations.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US Patent 3,835,852) in view of Windefordner (US Patent 5,860,168) and further in view of Troup (US Patent 6,070,577), and further in view of Garrahan (US Patent 3,351,089) as applied to claim 8 above, and further in view of Morgan (US Patent 3,680,556).

Regarding Claim 12, Anderson's support structure is shaped to carry a sealing arrangement so that in use the sealing arrangement is interposed between the diver's face and a portion of the support structure (the support structure 11 includes a sealing layer over the skin, col. 1, line 17).

Anderson lacks a hood and a fastening structure positioned over the hood that is engageable with the support structure. Morgan teaches a hood 142 and a fastening structure 140 that is positioned over the hood and is engageable with a support structure. It would have been obvious to one of ordinary skill in the art at the time the invention was made modify the device of Anderson to include a hood and fastening structure as taught by Morgan in order to provide a securing mechanism for securing Anderson's device to a diver's face.

***Allowable Subject Matter***

9. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 14-17 depend from Claim 13.

***Response to Arguments***

10. Applicant's arguments with respect to claims 1, 4-18, 20, and 22 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schnoor (US Patent 4,667,667) discloses a pilot's helmet with closure elements for pressure equalization.

Gamberini (US Patent 6,155,253) discloses an underwater mask with protuberances for nasal pressure equalization.

Resnick (US Patent 6,302,103) discloses a respiratory hood with nasal passage closure elements.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARUNDIPTA SHOME whose telephone number is (571)270-5539. The examiner can normally be reached on Monday through Friday 9:00am to 6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Arun Shome/  
Examiner, Art Unit 3771

/Justine R Yu/  
Supervisory Patent Examiner, Art Unit 3771

